

Fire NZ

ISSUE 8 | SEPTEMBER 2013

CREATIVITY
GROWTH
TIME
TEAM
PERFORMANCE
NECESSARY
TOPIC
ORDER
CUSTOMER
INCREASING
EFFECT
BUSINESS
WORKING
INNOVATION
NEW
RESEARCH
CHANGE
TERM
BUDGET
POLICY
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PROCESS
DEVELOPMENT
MUST
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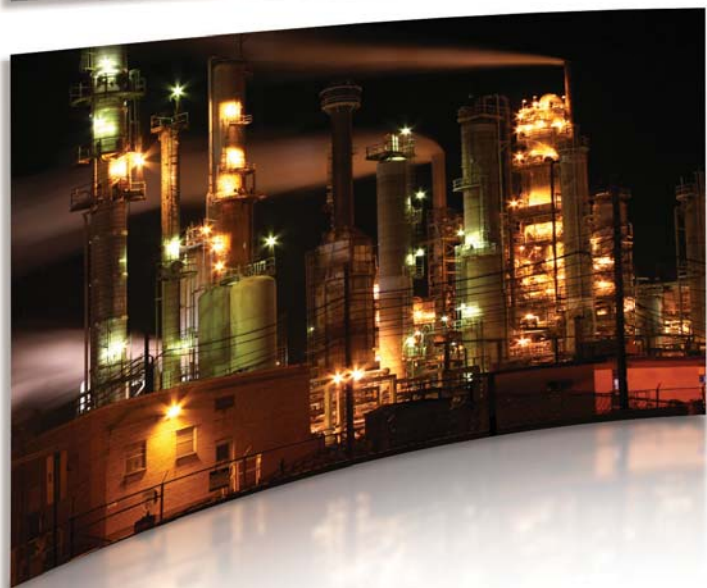
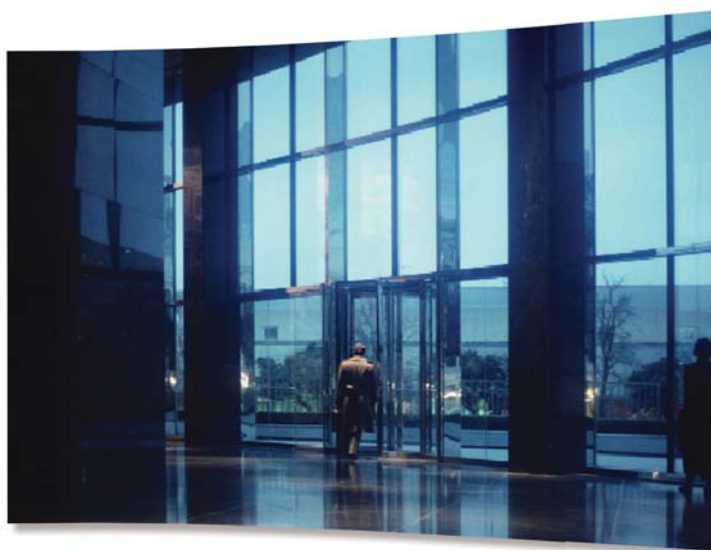
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fire NZ

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Fire NZ welcomes articles and letters from our readership. These can cover any aspect of fire protection, fire engineering (performance and design), legislation, fire safety practice, fire industry product development, firefighting operations, techniques, equipment and case studies and technical news. All articles will be assessed by an editorial panel prior to publication who, at their discretion, reserve the right to either decline use of the article or seek amendments. Articles should inform, debate, educate and help our readership through sharing of both knowledge and expertise.

Themes for the upcoming magazine production will be promoted in advance of editorial committee deadlines to ensure all contributors are able to meet the final magazine delivery timelines.

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THE INSTITUTION OF FIRE ENGINEERS
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Editorial

The last three years in New Zealand has heralded the true cost of disaster to our country. Aside from the obvious cost of the damaging earthquakes centred in the Canterbury plains at Darfield, the Christchurch foothills, and most recently those centred out to sea in the Cook Strait and near the top of the South Island town of Seddon – these events have drained the economy and rattled and scarred peoples' lives and emotions.

So, since our 1931 great disaster of the Napier earthquake, has society changed to prepare us for such events? Indeed, has the NZ fire industry evolved in such a fashion to provide our communities and business with a higher level of preparedness and resilience?

Our building standards have clearly improved, the construction industry and our own fire protection industry have evolved to match Building Act, Building Code, Fire Safety and Evacuation of Buildings Regulations, Council Building Consent Authority, IQP, Standards and business practice to achieve the 21st century level of community expectation of safety and building practice.

As we head towards the annual FireNZ 2013 Conference and Exhibition, the spectre of contractor retentions is in discussion with the Government Select Committee to achieve a better definition and protection for contractors in each phase of a buildings development and build.

Business financial and economic sustainability and delivery of contracted services has been at risk if principal contractors fail to meet their contracted obligations with respect to the completion of the work and expected cash flow.

A fairer and well practiced level playing field is now sought to ensure contracted delivery of work and payment is protected. The fire protection industry is no different to other industries that supply service and create the building that the owner has paid for. Although, it is fair to say that a

number of fire protection issues continue for contracted and supplied service for the life of the building. Inspection and maintenance, building service upgrades and technological advancement or change to building use, all form part of what contractors provide to the building owner and the principal contractor.

This edition of FireNZ is again out in front and available electronically as a support communication to this years' Viaduct Event Centre, Auckland based conference and exhibition. You will find great articles, the conference program and reference to the array of speakers who will deliver thought provoking papers around the theme of "Added Value: It is Worth It!!"

If you were to invest in your business, or yourself, to better inform and prepare yourself for the current market place and future fire industry direction – then you MUST register and attend this years' FireNZ conference and exhibition.

The conference and exhibition will again grow on the success of last years' phenomenal event in Rotorua, with a packed and well supported innovative exhibition with latest products and services on display. The conference events include key note international and local speakers with a technical range of speakers to enlighten all delegates. We will have a session from "the couch" with industry leaders that will prove to be topical as well as challenging to our thinking!

The networking that enhances relationships and business acumen is a key feature of the conference and exhibition with the break sessions in the exhibition hall, the conference exhibition opening and conference dinner being great social events to celebrate our fire industry.

Register early, see you there and be part of making this years' FireNZ Conference and Exhibition the great event that it is.



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Pertronic FireMap® Graphics integrates Waikato University's fire alarm systems

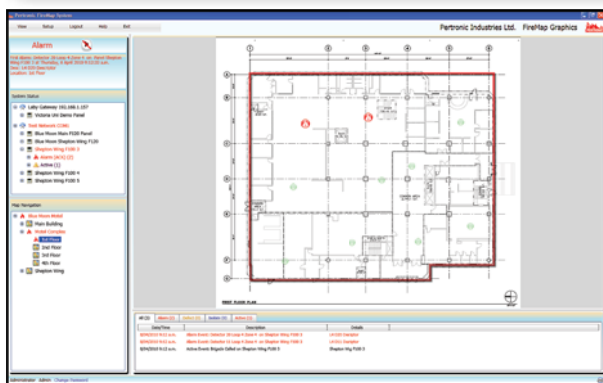
CASE STUDY: WAIKATO UNIVERSITY, HAMILTON, NEW ZEALAND

Providing fast, accurate information on fire related events to key response personnel is critical in any building - all the more so in education facilities where high occupancy levels exist in adjoining buildings at the same time. Recognising the importance of protecting their staff, students and buildings with modern fire detection systems, Waikato University have progressively upgraded their fire alarm equipment, standardising on Pertronic analogue addressable fire control panels. Over fifty such systems are now operational campus wide, installed and maintained by Fire Security Services Ltd.

The next stage of the upgrade is to integrate the detailed information provided by these intelligent fire systems into a computer based application, accessible at different locations by facilities management and security personnel. FireMap® graphics provides the platform to achieve this. Developed in-house by Pertronic Industries, FireMap was designed with ease of installation and ease of use as prime requirements. Most PC-based graphics systems are complex to develop. Unless the fire alarm company has staff with comprehensive training in graphics development, this work is usually undertaken by a third party contractor, adding cost and delays in the communication chain to the end client.

Pertronic FireMap simplifies the whole process. The fire alarm company develops and maintains the entire FireMap graphics system for their client. Importantly, FireMap can communicate between multiple PC's and fire panels over the client's ethernet LAN, as is the case at Waikato University, removing the need for additional, expensive cabling. Once FireMap is operational, navigation is via a hierarchical map viewing system, always visible to the left of the computer screen. When an alarm occurs, the relevant map (or zone) automatically displays and shows the physical location of the device in alarm together with its details.

While FireMap is designed to operate primarily with Pertronic analogue addressable fire systems it can also interface with non-Pertronic equipment to display information on other important systems - for example, stand alone gas flood suppression controllers - valuable information to ensure a fast, accurate response to any event site wide.



Typical FireMap graphics screen layout

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From the Presidents

Greetings to all The New Zealand Branch Council is currently in conference preparation mode. Each year the FireNZ conference gets bigger and better drawing interest from all over the country and overseas. This year we were spoilt for choice by having too many quality speakers and had to politely postpone several until another time. The Auckland IFE Group is the hosting Group of the IFE for this year and I look forward to engaging in their hospitality with many of our members. The event, Adding Value-It is Worth It is being held at the Viaduct Events Centre on the 22nd/23rd October.



This year will see the IFE CEO Louise Craig and the new International President Grant Lupton attend and be joined by the IFE APAC forum members. The APAC Forum unites the Asia Pacific Branches of the IFE for a workshop that is chaired by our very own past president Gary Ward.

New Zealand members continue to be key players in many aspects of the international IFE group by having representation on the Board of Directors (Brian Davey), the International General Assembly (Myself) and the APAC Forum (Gary Ward). Many of the new initiatives introduced worldwide can be credited to ideas from our involvement.

One of these ideas will occur shortly with the introduction of the newly improved website. This is a long overdue upgrade that I believe will be well received by our members.

Another new initiative supported by New Zealand will see the International General Assembly meet in Manly Australia in March 2014. This is a first and will see the northern hemisphere branch representatives and board travelling to Australia.

This opportunity will allow forward planning benefits for our branch whilst introducing fatigue and excessive travel to other branches! This I believe is recognition by the Board that the IFE is truly a global institution.

By now you should have received your newsletters and been impressed by how well the publication has been developed by council member Duane Harding Browne. You will have noted the call for nominations for Branch Council and I request that you consider taking the IFE challenge. Council membership is rewarding and provides great personal development opportunities. I look forward to meeting and managing my new council in October.

I would like to also mention Ed Claridge as it is his time to stand down from re-election in accordance with the constitution. Ed does an incredible job processing the examinations and assisting with IFERG inquiries. I am hoping that Ed will stand for re-election after his one year stand down period. I am sure he will continue to assist and support the Branch even while he is away from formal council involvement.

The Branch extends its congratulations to Stephen Mackle (Godiva Prize) and all other successful examination candidates and encourages all others to continue to strive for success.

In conclusion I would like to thank Trent Fearnley (Secretary/Treasurer) and the remaining Council members (not forgetting Jeanine, our admin person) for their commitment to the success of the New Zealand Branch.

I invite you all to Auckland on the 22nd and 23rd October 2013 for the conference and AGM, Adding Value -It Is Worth It.

This years' FireNZ conference and exhibition theme poses an interesting proposition – Added Value: It is Worth It!



As the IFE President in 1998, I invited then FPANZ President Kevin Kennedy to a joint conference in Auckland at the NZ Expo and Convention Centre at Mangere, near the Auckland Airport. The idea was to Add Value to both organisations conferences by joining forces and sharing the conference speakers, exhibitors and conference sponsors for the benefit of the delegates who are our members.

15 years on and the notion of Added Value to our Conference and Exhibition is not only our theme but is represented with FPANZ, IFE and SFPE working together for the benefit of the Fire Industry at large.

Have we now reached a place of true Added Value with its worth and benefit being realised? I think not. We are certainly in a much better place since those early shared conference days of the late 1990's.

I would suggest that we are nationally still short of the vision of a true national FireNZ conference and exhibition with seminars/workshops and public appeal that see's the importance realised by ALL organisations and agencies co-operating with maximum benefit having Added Value through a week of learning and discussion around fire regardless of what sphere of activity you are involved in to make safe and protect our country from the ravages of fire – wherever it may occur.

The FPANZ has international linkage particular with our close cousins across the Tasman Sea with regular attendance and speaking opportunities shared at our conferences each year. This year Past President of the FPAA Glenn Talbot will address us and I am sure he will add value to our conference. Whilst Pro Vice Chancellor Ted Zorn of Massey University College of Business leads academia at the Albany Campus in Auckland, his roots are from the USA and will bring us much value through his key note address.

Executive Director Mike Connolly has recently returned from a personal trip to the UK. During his holiday he took time out to meet with FPA UK colleagues to again seek to grow our international connection and add value on the international stage and forum.

The FPANZ is now restructured and ready for the future needs of our association. In the last 3 years, since I took up the role of President, I have witnessed and enjoyed the support of many key members of our association. There are still many challenges to ensure our industry has resilience and organisational support for the many facets that we, as an association, provide to our members and to our communities.

I would like to thank all those who have been part of our Board, Council, Special Interest groups, associated agencies and, in particular, our office staff, who ensure the day to day business of providing our association with momentum to support our members needs.

In reflecting on the last 15 years of the growth of the FPANZ since that first joint conference and, indeed reflecting on my last three years as President, I believe we have Added Value in what we have achieved as an organisation to be the voice of the Fire Protection industry and this years' conference and exhibition will make the statement that "It is Worth It!"

Graeme Quensell Grad. Dip Building
Fire Safety and Risk Engineering, FIFireE, NCAET
President, Institution of Fire Engineers NZ Branch



Mitchell Brown
President, Fire Protection Association New Zealand



IFE Asia Pacific Forum



Gary Ward
MEmergMgt FI.Fire E.

Chair of the
IFE Asia Pacific Forum

The Institution of Fire Engineers (IFE) will host the third Asia Pacific Forum in Auckland in conjunction with the Fire NZ Conference 2013.



The Institution of Fire Engineers (IFE) is the international organisation for fire professionals with over 10,000 members and a global reach that extends through forty-one international branches. The Institution was founded in 1918 with the objective "To encourage and improve the science and practice of Fire Extinction, Fire Prevention and Fire Engineering and all operations and expedients connected therewith, and to give an impulse to ideas likely to be useful in connection with or in relation to such science and practice to the members of the Institution and to the community at large." As the Institution approaches its 100th Anniversary, that objective is just as relevant in the modern era.

The IFE is a non profit making professional body that upholds professional standards within all public and private fire sectors by offering assessment of knowledge, experience and development and engages with major stakeholders to offer international conferences, identify and promote good practice and enhance technical networks worldwide. The Institution provides professional recognition for members across a broad spectrum and has achieved recognition from a number of professional bodies including the Engineering Council.

The idea of setting up IFE Asia Pacific Forum (APAC) had been discussed for a number of years with the aim to further the objectives of IFE and to promote the Institution and fire safety engineering within the Asia Pacific region. A further benefit is to improve IFE membership interaction in the region and to potentially assist the development of branches in countries new to the IFE.

And so in March 2010 the inaugural APAC Forum was held in Zhuhai, Guangzhou Province in China. Delegates attended from Hong Kong, Malaysia, Singapore, Australia, New Zealand, Canada and the United States of America. The assembled delegates heard how Hong Kong branch has the largest IFE membership outside of the United Kingdom with a flourishing fire engineering fraternity thanks to links with the University of Central Lancashire who offer a fire engineering degree.

The Malaysia Branch has introduced the unique initiative of practical Continuing Professional Development Camps for members and potential members not associated with the fire service. They take part in practical fire fighting exercises so that they have a better appreciation of the fundamentals of heat intensity, radiation, smoke layers, and the effect of water against fire etc.

The second APAC Forum was held Kuala Lumpur in November 2012 in conjunction with the International Fire Conference and Exhibition Malaysia. All Asia Pacific branch Presidents attended along with IFE International President Roy Bishop and Peter Holland, Chairman of the IFE Board of Directors. The assembled group, which included three National Fire Protection Association delegates, received reports from all the branches, and established the terms of reference for the Forum. Elections took place which saw Gary Ward, the then President of New Zealand branch become the Chair of the Forum, and Dominic Cheung from Hong Kong branch the new Secretary.

The third APAC Forum will follow the Fire NZ Conference in Auckland. We have been fortunate to secure both the IFE International President Grant Lupton, and IFE Chief Executive Officer Louise Craig to speak at the conference and forum. Grant who is the Chief Fire Officer of South Australia, recently commented on the "collegiality of the IFE where members from many countries and different cultures come together, regardless of rank, position or employment, to learn from each other; to collaborate and contribute to fire engineering and to support each other as true professionals". And Grant believes that this is the basis of being a professional. Of course there is some personal benefit to the individual, but more important is what the individuals can do collectively for their profession. And that is why the APAC Forum was established and will meet in Auckland in October to continue that work.

I look forward to sharing the Fire NZ 2013 Conference with our friends and colleagues from the Asia Pacific region. Finally, I would like to thank David Percy and Pertronic for their sponsorship of the APAC Forum.

The CCA Amendment Bill

CASHFLOW, RETENTIONS AND SECURITY OF PAYMENT



Peter Degerholm

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The Construction Contracts Act 2002 came into effect on 1 April 2003, and had been in force for 10 years when submissions on its first Amendment Bill 2013 closed on 25 July. While the Amendment Bill doesn't significantly affect contractors and subcontractors, its final form may go some way towards addressing security of payment.

Like many others I expressed qualified support for the Amendment Bill, and responded to Minister's indication of interest in retentions and security of payment in the wake of the \$100m Mainzeal collapse in February 2013.

The Mainzeal fallout continues, with several large, well-established subcontractors going into receivership, highlighting the commercial risks faced by subcontractors, head contractors and clients.

RETENTIONS AND CASHFLOW

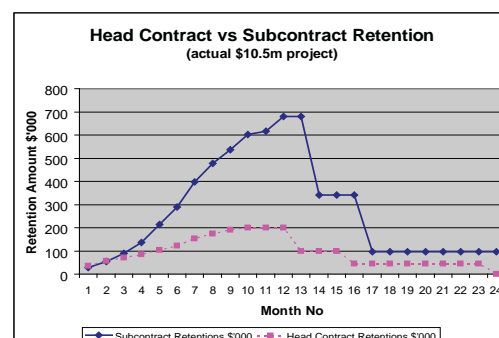
Head contractors supported the removal of *pay when/if paid clauses* in the lead-up to the Construction Contracts Act, but showed no interest in changing the retention regime. It was clear just how far the scales were tipped against subcontractors when Goodall ABL Construction failed in 2000. The liquidator reported that \$1.08m withheld from GABL in retentions, and my creditor survey indicated that GABL was withholding up to five times that amount from its subcontractors – around \$857K was being withheld in retentions from the 12% of creditors who responded. Similarly in 2013 the liquidator reported that Mainzeal had \$11m retentions, but was withholding \$18.6 million from its subcontractors¹.

GABL's former general manager had provocatively blamed subcontractors claiming for their overdue retentions for his company's downfall: "[the retentions] was money owed to us by the developer and basically we needed the cash flow to tide us through for two months until the cash flow began on Princes Wharf. When you start a job, it costs a lot of money before your cash flow becomes positive²". But who did those retentions really belong to?

¹ Building Research Association of New Zealand Inc. (BRANZ) Build 136 Magazine "Caught in the Crosshairs" June 2013 p. 92-93

² NZ Herald 8 April 2000 "What went wrong?"

As the following graph shows the industry-standard sliding scale allows head contractor to withhold far more retentions from subcontractors than retention amounts under their head contracts.



The imbalance between the head contract and subcontract retention amounts creates a significant cashflow windfall for head contractors, but when retentions are due for release to subcontractors the imbalance that has been consumed as working capital may not be available to subcontractors. Further, as Mainzeal has demonstrated, the subcontractors' unsecured retentions are totally at risk when a head contractor collapses.

CONTRACTUAL PROVISIONS FOR RETENTION RELEASE

Anecdotally many head contractors wait for subcontractors to submit their payment claims for retention release – most subcontract agreements provide for subcontractors to claim their retention release in the first payment claim after practical completion and defects liability certificates are issued.

As one contractor recently advised: "It is our policy to pay when monies are claimed not before. I can't imagine trying to chase every sub-contractor I have dealt with in the last year to ask them to issue claims [for release of retentions]".

You may well ask how subcontractors can possibly know when they are entitled to submit a retention if the head contractor refuses to tell them when the certificates are due and when they have been issued.

The industry somewhat euphemistically describes subcontract agreements as "back to back" with the head contracts they relate to. That is true in regard to most head contractor

obligations, but not in respect of some of the benefits available to the head contractor. This is demonstrated in the following comparison of the default position in industry-standard forms of head contract and subcontract. In effect there is an imbalance 'built in' to the industry psyche.

Payee Entitlement	Head contract NZS 3910:2003 ³	Subcontract Agreement SA-2009 ⁴
Option to provide bond in lieu of retentions	☑	☑
Partial retention release at end of defects liability period	☑	☑
Final retention release when all notified defects remedied	☑	☑
Payment of interest when payment is overdue	☑	☑

In my view there is an indisputable moral argument that retentions withheld by payers belong to the payee; to ensure properly notified defects are remedied, and should be released in a timely manner. The CCA was enacted to outlaw *pay when/if paid* clauses – perhaps it's time to eliminate the *retention abuse* that appears widespread.

I'm not against retentions – although a crude tool, they incentivise performance of building work and remedial work. However I do not condone retention abuse, which undermines the Act's principal objective of proper cashflow, and perpetuates an unhealthy dependence upon withholding retentions from subcontractors for use as working capital.

A POSSIBLE SOLUTION

My submission to Select Committee proposed a statutory framework that would address this moral dilemma, and which would sit alongside the existing progress payment mechanisms in the Act, was summarised as follows:

A payer may withhold from payments otherwise due to a payee under a construction contract as an amount in the nature of a "retention" as surety for prompt remediation of defects in the construction work carried out by the payee, provided that the retention:

- Is validly withheld by a payer (in accordance with a prescribed purpose, time limit and monetary limit), and*
- At all times belongs to the payee (whether held in a trust fund or defined by statute as being in trust); and*

- May be applied to the remedying of defects only where the payee has defaulted in the remedying of properly notified defects; and*
- Is released to the payee when due (with appropriate consequences where the payer defaults); and*
- May be substituted at the payee's sole option by another form of surety, such as a bond in lieu.*

Such measures would not provide security of payment. However they should build on the original Act by further improving industry culture, attitude, and payment behaviour. The better the cashflow, the greater the security of payment – after all the most secure progress payment is the one that has been paid on time.

My proposal would not add cost. It corresponds closely with the NZS 3910:2003 Conditions of Contract, and fits with the structure and style of the existing Act and industry-standard arrangements for progress payments, in the interests of the "cashflow" objective of the Act.

The Commerce Select Committee reports back to Parliament in December 2013, and we can look forward to CCA changes in mid-2014.

MANAGE YOUR RETENTIONS

In the meantime you don't need CCA changes to address your retention woes. Use the existing progress payment claim and adjudication processes as part of your day-to-day business practice:

Establish retention rules at the outset – tag tenders, review subcontract agreements carefully

Don't sign subcontract agreements with unreasonable retentions provisions – one subcontract agreement had 15% retentions!

Know what retentions should be held for each job, and check each progress payment

Record the retention due dates for each job (expected or actual) and follow up

Send a payment claim when you think retentions are due – don't just wait for the cheque!

Make sure your payment claim complies with the CCA.

Sending a payment claim forces the contractor to release those retentions that are due, or to issue a payment schedule informing when they will be due. Then you can effectively manage your retentions.

³ NZS 3910:2003 Conditions of Contract for Building and Civil Engineering Construction

⁴ Subcontract Agreement SA-2009. Subcontract agreement jointly published by New Zealand Specialist Trade Contractors Federation Inc and Registered Master Builders Federation

Fire Investigations ON THE WATER



Issue 015 | August 2013

Boats under Construction
or Maintenance

BACKGROUND

Being a nation surrounded by water and a mild climate, boating is a popular pastime in New Zealand. With one of the highest rates per capita of boat ownership in the world there are boats of all sizes found around the country. Whether under construction in a boat builder's shed or up on the hard for maintenance there is always a large number of boats being worked on at any time. Many of these boats represent considerable investment as well as a strong emotional connection for their owners.



Unfortunately boats under undergoing work often have more ignition sources than usual.

In addition, many of the materials commonly used in boat construction or maintenance, boat structures, furnishings, fuel and equipment are often very combustible. These factors create a very high fire risk for boats as the combustibles cause fires to develop extremely fast and cause extensive damage.

In New Zealand there's been a number of luxury yachts and many private boats that have been extensively damaged as a result of fires during construction or maintenance. Traditional fixed fire detection and suppression systems designed for buildings are not suited to boats temporarily located on land.

CASE STUDY - INCIDENT DETAILS

A 53 metre luxury yacht with an estimated value on completion of US\$50 million was under construction in Auckland and was approximately 75% complete after two years work.

Around 1.00a.m. on a Sunday morning a fire is believed to have started inside the building, external but adjacent to the yacht. The fire activated a security system motion detector and a guard responded to the scene within minutes of the activation. Six minutes later the yacht's internal fire detection system activated indicating smoke had penetrated into the vessel. The first fire engine arrived within 14 minutes of the initial activation and encountered a well developed fire inside the vessel. The onboard fire suppression systems were not commissioned at the time of the fire.

When the fire was finally declared extinguished the luxury yacht had been extensively damaged by fire.



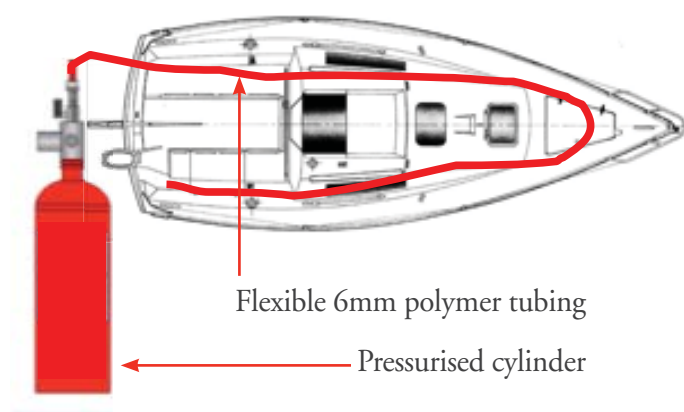
The luxury yacht – before and after



FURTHER INFORMATION

By their nature pleasure craft have relatively small compartments and openings compared to buildings. These factors lend themselves to the use of gas flooding as an effective form of fire suppressant. Even when a fire may be remote from the point of gas release the compartment would quickly become flooded with a gaseous fire suppressant enabling early containment and/or extinguishment. The challenge is to enable the gas to be directed into the fire affected compartment from a supply source without installing fixed pipework.

Available within the fire protection industry is a highly portable fire suppressant system that enables fire protection to be easily and temporarily placed into boats while maintenance or construction is underway. It works similar to a handheld fire extinguisher but uses an 6mm polymer tubing that can be easily run from a pressurized cylinder or combinations of cylinders. The tubing is rated to rupture at a defined temperature (70°C to 140°C) and releases the cylinder contents at the point of rupture effectively creating a localised discharge nozzle where the fire is.



Any sudden change in pressure in the cylinder can activate a cellular monitor on the cylinder to notify a selected recipient that the system has activated.

The system can use most commercially available fire suppressing agents including gases, foam and dry chemicals although gases may provide the most effective medium for use in boats. Modern fire suppressant gases are non-toxic allowing people working in the vicinity to evacuate from the area on fire.

The advantages in using a pressurised system using flexible tubing include:

- it is very easy to place throughout a boat and can be easily shifted or removed as work progresses or finishes
- it becomes both a fire detector and extinguishing applicator providing protection 24/7
- combinations of different suppressing agents (as appropriate to the risk) can be used on the vessels
- it has a precise sensitivity so will activate at a known temperature
- it is leak resistant but ruptures when exposed to flame
- there is no control panel and system not reliant on an electrical source
- cylinders come in a range of sizes to suit the size of the compartment/boat (1kg - 84kg)
- for multi-level vessels separate systems can be placed on each level



LESSONS LEARNED/RECOMMENDATIONS

The fire risk to boats under construction or undergoing significant maintenance can be significantly reduced by utilising a temporary fire protection system like this one. These self-contained pressurised fire protection systems could be used by:

- boat clubs and marinas who could manage stocks of these systems renting them to boaties for the duration of maintenance work
- commercial boat builders, marine engineers and shipwrights
- luxury yacht builders
- private individuals working on boats at home

Variations of the system with fixed nozzles can be used as permanent fire protection for boats at sea.

Further information on these system can be sourced through the Fire Protection Association (NZ) at (09) 414 4450.

fired up



& on show

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Voidable Transactions – BACK ON TRACK

John Shackleton, Partner
Dispute Resolution, Simpson
Grierson

A creditor wanting to keep the benefit of a potentially voidable transaction must be able to prove that value was given to the debtor company at the time payment was received, the Court of Appeal has held in [Farrell v Fences & Kerbs Limited](#) [2013] NZCA 91.

Section 296(3) of the Companies Act 1993 provides a defence to creditors who are a party to a voidable transaction that a liquidator is attempting to upset. To keep whatever they received from the company, a creditor must satisfy the three criteria set out in section 296(3). At the time they received the payment or other property, the creditor must be able to prove they:

- had acted in good faith;
- had no reasonable grounds for suspecting that the company was, or would become, insolvent; and
- gave value to the company.

It is the third element, concerning the giving of value, which has received the most recent attention from the Courts.

In [Farrell v Fences & Kerbs Limited](#) [2012] NZHC 2865, [Farrell v ACME Engineering Limited](#) [2012] NZHC 2874 and [Meltzer v Hiway Stabilizers New Zealand Limited](#) [2012] NZHC 3281, the High Court temporarily derailed the accepted thinking as to what was meant by “giving value” by holding that value given by the creditor at any time - not just at the time of the challenged transaction - was sufficient. The High Court looked to the Australian equivalent of section 296(3) and held that there was no intention that New Zealand would depart from the well-settled position in Australia that, by receiving a payment made to discharge an earlier debt, the creditor has given value at the time of the transaction.

The Court of Appeal’s reversal of the High Court’s position was met with a warm welcome from the insolvency industry. The Court of Appeal recognised the importance of the rights of all creditors under the *pari passu* rule, noting that «it is important to keep in mind the

rationale for the avoidance provisions... The object is to swell the pool of funds available to the company to be shared rateably amongst all creditors of the same class... this objective would be substantially undermined if the mere receipt of funds to discharge an antecedent debt were sufficient to meet s 296(3)(c)».

The Court of Appeal emphasised that the wording of section 296(3) meant that creditors had to prove value was given at the time payment was made, and that if Parliament had intended «value» to include earlier debt, then it would have noted this in the Act. It also considered that the High Court’s reliance on the Australian approach was «misplaced», principally due to the difference between the New Zealand and Australian provisions, stating that «the best guide to statutory intention is the language used. In that respect, New Zealand has deliberately adopted different language».

SUMMARY

Any transaction that has the effect of settling earlier debt between a creditor and an insolvent company has the potential to be attacked, and the payment to the creditor clawed back, by liquidators under section 292 of the Act

A defence may be available to creditors under section 296(3) if they can show that some form of value was provided by the creditor to the insolvent company at the time of receiving payment, and that the creditor was also acting in good faith and without knowledge of a current or impending insolvency

If payment is received two years before the liquidation, the payment cannot be recovered as a voidable preference (unless the creditor falls into one of the categories of related persons)

Even if a creditor has entered into a voidable transaction, it is not always the case that a liquidator will pursue the money owed

Creditors can minimise the risk of a voidable transaction through credit management, and monitoring changes to payment times of any companies that they are trading with.

ADDED VALUE – IT IS WORTH IT!



Mitchell Brown

FPANZ, President
IFE (NZ Branch), Past President

As part of the conference committee that came up with this year's FireNZ 2013 Conference and Exhibition theme I thought it was high time I explained the concept of the theme.

Whilst researching this article for the FireNZ magazine I came across a concept from Sally Hogshead posted on howtofascinate.com. Whilst the concept Sally talks about is relative to communication in all forms, and suggests that every time you communicate you're either adding value, or taking up space, I believe we can relate the following seven principles to the Fire Industry of New Zealand that we are all part of.

POWER – YOU LEAD

We all have a responsibility to lead in our own way the things that we are responsible for or contribute to. Whether you are the Managing Director or part of the team of staff that deliver all aspects of the business ... you lead that aspect of the business. In effect you lead and contribute to the delivery of service and product for the company that adds value for the benefit of itself as a business but ultimately the customer.

PASSION – YOU CONNECT WITH EMOTION

I have been part of the fire service for over 30 years. During this time I have also been part of the Institution of Fire Engineers and Fire Protection Association NZ for over 25 years. I have been the President of both organizations and served on various committees and attended many conferences and exhibitions both locally and internationally. The reason for this has been my passion for all things fire. My personal innate drive to connect emotionally and intelligently with those things that add value to what we all contribute to. Passion for what we do should not be underestimated, it makes us want to succeed and win with what we believe in and want to achieve. I challenge you to think about the level of passion you have for what you do or indeed what you add value to and why.

MYSTIQUE – COMMUNICATE WITH CARE

Part of everyday life and business is the requirement for clear and open communication. There must always be a mystique to what we do as this drives innovation and future thinking. However mystique cannot be confused with withholding information and posturing,

but maintaining the competitive edge on competitors and adding value to the customers and suppliers of your business.

PRESTIGE – YOU SET THE STANDARD

Prestige of your business is built on the notion of adding value creating brand and market reputation or your business. This requires the setting of standards and the maintenance of professional standards and industry standing. The demonstration of business and industry standards with walking the talk creates the customer added value expectation of prestige with their customer experience.

ALARM – YOU PROTECT THE DETAILS

Added Value: It Is Worth It, is achieved when the necessary business practice is replicable and does not cause alarm to your business or the competition. It's a balancing act with many facets to be considered and factored in. Look after the business and protect your interest and details of your success.

REBELLION – YOU BRING CREATIVITY

Those businesses that challenge the norm and are rebellious to the status quo will ultimately add value. The creation of new ways to do business needs a degree of rebellious nature without scant regard for dynamic risk assessment. When, how and why we challenge the norm needs to be constantly reviewed through rebellious creation of added value to your business and customers.

TRUST – YOU BUILD LOYALTY

After all of the above points, the proposition of Added Value will create trust, brand identification and company resilience. If the one thing above all else was to ensure succession and sustainability for your business then added value will create Trust and build loyalty towards your business future.

Whilst this example of the Added Value proposition requires organisational integration and practice, this year's FireNZ Conference and Exhibition will provide delegates, exhibitors, speakers, sponsors and the three conference organizations – Institution of Fire Engineers (NZ Branch), Society of Fire Protection Engineers (NZ Chapter) and the Fire Protection Association New Zealand with the best opportunity to further discuss the conference theme – Added Value: It is Worth It!

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fireNZ 2013 Conference and Exhibition

The **Fire Protection Association New Zealand** in association with the **Institution of Fire Engineers NZ Branch** and the **Society of Fire Protection Engineers NZ Chapter**, invite you to participate in FireNZ 2013, New Zealand's key annual event for the fire protection industry.

WELCOME

FireNZ is the annual forum for Fire Protection and Fire Engineering professionals.

This two day event will provide a comprehensive national forum for fire industry professionals. The conference programme is designed to provide insight and learning and to extend current thoughts on the various speakers presentation topics.

THEME

In today's environment customers, clients and stakeholders expect much more from our staff and our organisations. One of the catch phrases we hear and express is that, in everything we do, we have to add value. Yet we are increasingly asked to reduce or minimise costs by reducing margins or looking for trade-offs. It should be about quality and value over the whole of a building's or system's life, not simply immediate cost. The question we end up asking is – Is Added Value Worth it?

VENUE

With stunning waterfront location, the Viaduct Events Centre is Auckland's newest purpose-built venue. Surrounded by some of the city's most exciting restaurants, and just a short harbourside walk to the central business district, the Viaduct Events centre offers delegates convenience packed with style.

EXHIBITION

Entry to the FireNZ 2013 Exhibition is FREE to anyone with an interest in the fire industry. Registration is not required to visit the Exhibition. A visitor sign in book will be available at each entrance for visitors to sign in. Catering is for Delegates and Exhibition Representatives only. If you are not able to attend the full Conference, you may still be able to take this opportunity to see the latest in fire industry products and services all assembled together on one place.

WEBSITE

The FireNZ website will again be fully operational with news of FireNZ 2013. The website will be the means by which we keep delegates and exhibitors up to date with the event. The website can be accessed through either the FPANZ, IFE or SFPE Websites.

CONFERENCE DINNER

The FireNZ 2013 Conference dinner will be held at the Viaduct Event Centre, Halsey Street, Auckland. This is a relaxed event where speakers, delegates and guests can network and be entertained by well known New Zealand comedian Ben Hurley.



After winning the Billy T Award in 2004, Ben set off for the UK where he honed his craft on the notoriously competitive comedy circuit there. Three years of gigging six nights a week, and often multiple shows in a night, saw Ben return home to New Zealand a seasoned performer with more experience than a lot of senior comedians. His time there also had him record a radio series with UK comic Any Parsons and support Irish superstar Ed Byrne on a three month long tour of the UK and Ireland.

Having consistently performed shows at the New Zealand International Comedy Festival since choosing his path in comedy, 2008 saw Ben with The Fred Award for comedic excellence, with his critically acclaimed show BOOM!

Ben is widely recognised from his regular appearances on TV3's 7 Days, which he is also Head Writer for. He has numerous other TV appearances with several Comedy Galas, AotearoHa, The Tiki Tour Edition, Dai's X-Mass Special, @Seven and hosting the 2010 New Zealand Music Awards.

Dinner tickets can be purchased through the conference registration form. A cash bar will be available. Wine, Juice and Water will be provided on tables at dinner.



WHO SHOULD ATTEND

Under 25 Cadet/Apprentice Students | Fire Protection Contractors | Fire Consultants | Fire Engineers | Architects | Building Surveyors
Property Developers | Distributors and Installers | Insurance Professionals | Fire Equipment Manufacturers | Fire Survey Personnel
Regulatory Authorities | Fire Service Career & Volunteer Personnel | Fire Risk Management Personnel | Property and Facilities Managers
All full 2 day conference delegates will receive a Continuing Professional Development (CPD) Certificate

8.00am	Registration
8.30am	Opening Address
9.00am	<p>Added Value – It's Worth it in the Business World. <i>Pro Vice-Chancellor Ted Zorn, Massey University (Albany Campus), College of Business</i> From a Business World helicopter view Professor Ted Zorn of Massey University College of Business will challenge our thinking and practice regarding customer expectations and the business owner's delivery of added value in the market place. The Fire Industry is no different to other sectors. Tensions exist between business-as-usual vs added value, between fulfilling customer expectations vs surpassing them, and between meeting current market demands vs anticipating changes. Professor Zorn can provide you with an insight to your sense of the conference proposition: Added Value – It is Worth It!!</p>
10.15am	<p>The Responsibility of Leadership as Fire Professionals. <i>Mr Grant N. Lupton AFSM, B.GS, FIFireE, CPMgr, FAIM</i> How do we continue to meet our responsibilities as fire professionals when it seems every endeavour or undertaking in serving the community and humanity, is required to be measured or justified by the value it adds? We are constantly reminded by graphic images from around the world of how quickly major loss of life can occur in communities, structures and enterprises where safety standards are compromised by economic and commercial rationalisation. These losses are not just occurring in developing countries with limited fire and life safety protection standards. Major fire losses are also occurring in developed countries where fire professionals have worked with conviction to meet our professional responsibilities, at times against great challenges and resistance from competing interests. I will discuss how we can continue to maintain our commitment to protecting humanity by advancing our profession, when everything we do has to be reconciled against the cost versus the value added.</p>
10.30am	MORNING TEA
11.00am	<p>Adding Value : An International Perspective for the Fire Sector. <i>Louise Craig BA (Hons) TQFE MSc, CEO Institution of Fire Engineers</i> Whether offering fire engineering services, supplying fire protection products or providing emergency response to protect life, property and the environment, the fire sector is diverse and global. Successfully adding value can distinguish the exceptional from the average. But how is this best achieved? Focusing on a range of international applications of the added value concept, this paper suggests ideas for matching the rhetoric with real results.</p>
11.30am	<p>Adding Value Adds Up. <i>Sam Ricardo, FM Insurance</i> Recent research from the UK's Business Sprinkler Alliance (BSA) reveals the environmental impact of fire in sprinklered and unsprinklered buildings. This coupled with FM Global's extensive loss history shows the gross cost of fires in inadequately protected buildings is magnitudes greater than cost of fires in adequately protected buildings. Adding value through the inclusion of adequate fire protection not only prevents the loss of buildings but it provides business resilience and protects the things you cannot buy insurance for. This presentation will include a number of case studies to demonstrate this point.</p>
12.00 noon	<p>Adding Value is Easy – You have the Knowledge and the Power. <i>April Flux MLIS, Knowledge and Information Manager, NZ Fire Service</i> What value does information have? Not a lot unless you do something with it. April will add value to FireNZ 2013 by sharing what her team knows about fire information. She will talk about the resources we have, and how we can share them with you. We'll look at how to identify "good" information and where you can find it. Social media is a great way to share your own knowledge. Twitter, Linked-In, blogs and wikis can be great ways to find useful information. Knowledge becomes really powerful when you share it. Adding value to your work is easy when you have good people, information and knowledge behind you.</p>
12.30pm	LUNCH
1.50pm	Winstone Wallboard – Platinum Sponsor Address
2.00pm	<p>Managing Maintenance – What the results show. <i>Glenn Talbot, Verified</i> For the past decade Verified has recorded the results of Fire Safety Measures maintenance from over 30,000 sites across Australia. This valuable information represents the only real known database of delivered test and inspection results in Australia. The data provides a rare window into the actual results being achieved in the critical area of building fire safety maintenance. When it comes to Fire Safety Measures, a building owner or manager is required to deliver specific outcomes with regard to the fire safety items installed in the built environment. There are many prescriptive requirements that must be met to ensure the performance of the installed Safety Measures comply with regulations. It is imperative that building owners and managers take on a greater role in the area of Fire Safety Measures maintenance. Ultimately the service provider is not responsible to ensure buildings comply. There must be more diligence on analysing results and the Fire Protection Industry must take a lead role in providing consistent delivery of services.</p>
2.45pm	<p>Future challenges as an IQP. <i>Tim Weight, Building Control Manager, Central Area, Auckland City Council</i> With the pressures and technical requirements of managing a business as an Independent Qualified Person are you satisfied that you continually operate as a professional in your industry. The future will provide you with a variety of challenges which are going to stretch you ethically and technically driven by building owners ongoing quest to reduce building operating costs.</p>
3.15pm	AFTERNOON TEA
3.45pm	<p>The GeoBuild™ Strategy. <i>Andrew Minturn, Senior Advisor GeoBuild</i> The GeoBuild™ Strategy creates a national information exchange "framework" that digitises building, geographical and environmental data and information which is available online to users. The GeoBuild™ Strategy focuses initially on three technology programmes: (1) A National Online Building Consent System; (2) Acceleration of the use of Building Information Modelling (BIM); (3) An enhanced national and local Geospatial Information Strategy (GIS). This presentation covers how the GeoBuild™ Strategy can be used to encourage improvement in performance and productivity in the built environment. Among other things it will contribute to better knowledge of the potential reuse or adaptation of buildings and their components.</p>
4.15pm	<p>On the Couch. On the couch is a unique opportunity to hear from industry leaders who represent key aspects of the processes and stages of the fire industry achieving a building owners requirements. From Fire Design and Fire Engineering to product design and fire protection system manufacturing and installation, council sign off and compliance monitoring, IQP and Inspection and on-going maintenance of the fire protection building system – 'On the Couch' will change your view of the various stages and process that we all contribute to in some way to make the building safe and useable. Hear the views from key industry leaders, the council and building owner perspectives of what it takes to get the job done and ensure that the end result for the building owners through all that needs to be done to make a building fire safe and compliant is achieved, and meets the conference theme "Added Value – It is Worth It".</p>
5.30 – 6.30pm	DRINKS AND NIBBLES will be available in the exhibition area.
7.00pm	<p> GIB FireNZ 2013 Conference Dinner: Guest Speaker: Ben Hurley. Well known New Zealand Comedian Ben Hurley will perform at the GIB FireNZ 2013 Conference Dinner. Ben is widely recognised from his regular appearances on TV3's 7Days which he is also Head Writer for. He has had numerous other TV appearances with several Comedy Galas, AotearoaHa, the Tiki Tour Edition, Dai's X-Mass Special, @Seven and hosting the 2010 New Zealand Music Awards.</p>

The FireNZ Conference organisers have the right to change/alter the programme if it is deemed necessary

PROGRAMME

8.00am Registration

8.45am **The Economic Value Added through Accreditation.** *Geoff Hallam, Corporate Services: Technical Development and Regulatory Affairs Manager, International Accreditation New Zealand*

One of the critical considerations when it comes to implementing quality assurance programmes is the benefit(s) that accrues and to whom. Why should we invest in standards and quality assurance? After all there is a quite significant initial cost involved (direct and in terms of overhead) in mapping, developing, and documenting quality programmes and processes, not to mention the ongoing costs associated with audit and certification - costs that are difficult to recover in a business environment driven largely by price. In this paper I will address the differences but interrelationship between accreditation and certification, and seek to quantify and qualify the economic benefits resulting from implementing accredited quality assurance programmes in individual business enterprises.

9.30am **Lessons from the Perfect Storm.** *Paul Richards and Etienne Hermouet – NZFS*

The combined impact of the Canterbury earthquakes and the changes in the fire safety clauses of the Building Code has created an environment never seen before in the NZ fire engineering industry. The earthquakes damaged or destroyed a large number of buildings throughout the region. For many companies, the move into temporary facilities has required innovative solutions to ensure an appropriate level of fire safety. This presentation highlights the benefits of the Fire Engineering Brief (FEB) process using case studies in Christchurch and comparisons/parallels with the UK approach to show how early involvement with the NZFS adds value to the project.

10.15am MORNING TEA

STREAM ONE

10.45am **Altering Existing Buildings.** *Nick Saunders, Senior Advisor Building Standards, MBIE*

The new protection from fire requirements have impacted the assessment of existing buildings. The Ministry has provided information on how this change can be dealt with. This presentation summarises the new requirements and provides some examples of what might be required in future.

11.15am **CCA and Retentions.** *Peter Degerholm, Calderglen Associates Limited*

The Mainzeal failure has shaken a complacent industry and lessons have been learned. With the Construction Contracts Amendment Bill 2013 in front of the Select Committee, security of payment and retentions are back on the table for discussion. Peter will lead a discussion on:

- Cashflow = CCA + Best Practice
- Retention abuse
- CCA – what to expect in 2014

11.45am AGMS

12.30pm LUNCH

1.30pm **Preparing for the Wall of Work coming our Way.** *Amanda Warren, Constructing Excellence*

Amanda will talk about the volume of work about to hit NZ and how to prepare in order to maximise efficiency, customer satisfaction and profit. She will cover tools such as the Industry KPIs, benchmarking, Lean Construction and Last Planner.

2.00pm **Specific Application Window Sprinklers – Considerations for the Fire Engineer.** *Dave Hipkins, Wormald.*

Window Sprinklers are often specified by the Fire Engineer to achieve a fire rating for windows or internal glazed areas. Whilst the Fire Engineers key focus might be based on achieving the protection for the glazing, there are many other factors that need to be taken into account. This presentation discusses many of these factors including water supply requirements, the physical considerations as to where the sprinklers are to be located. How are these devices going to be serviced in the future? Does the application comply with the manufactures data sheet? What are the restrictions with regards to mullions and window size?

2.30pm **Amended NZS4541 2013 Appendix V – Optional Method of Protection for Small Community Buildings** *Peter Hughes CMIFireE, Fire Risk Consultant.*

This presentation will briefly cover the history of overseas and New Zealand Standards and the progression of New Zealand Standards to the inclusion and rationale for Appendix V in the 2013 amended NZS4541. Appendix V is specifically designed to provide sprinkler coverage to small community buildings at costs that can reasonably be expected to be raised and maintained by community groups. It is acknowledged that this Appendix provides guidance for the installation of sprinklers in certain (restricted) types of small buildings used only for community purposes where compliance with NZS4541 is not required either legally (for example, to comply with the Building Code) or by the owners of the building.

3.00pm AFTERNOON TEA

3.30pm **Can you Really Afford Not To?** *Mark Reilly AFSM, CMIFireE*

Modern day buildings and residential property development's by legislation are built to just the basic level of the BCA. This ensures three things:

- (1) The safety of occupants to evacuate the building
- (2) To allow firefighters time to effect basic rescue and evacuation activities, and
- (3) To prevent the spread of fire to adjoining property's.

With the growing number of deemed to satisfy buildings, which some say allows a greater design and more modern architectural flair, firefighters are facing more smaller and intense fires that are causing greater disruption to build use than actual damage to property. The cynical claim it allows developers and engineers to avoid what they consider added expense. This paper will look at the costs associated with just enough compliance with BCA through a deemed to satisfy approach and the long term savings in going just a little further to actually comply with tried and tested fire safety compliance. Two case studies will be used to demonstrate that a small initial investment in active fire suppression systems can avoid large costs in repairing fire damage and loss of access to residential structures.

4.00pm **Adding Value Through Industry Standards – NZ: Introduction of Insulated Panel Council Code of Practice on Building Panels.** *Ron Lawson, CEO of Insulated Panel Council Australasia Ltd*

The Insulated Panel Council Australasia (IPCA Ltd) has introduced a voluntary; industry administered Industry Code of Practice for Insulated Sandwich Panel. This paper will introduce and explain the code of practice and how it will assist building owners, insurers, fire fighters and fire engineers in identifying and mitigating the potential risks associated with the use of insulated panels. This paper will also present findings of a review of the literature of the fire performance of metal insulated panels using an expanded polystyrene core, and identify reasons that have led to poor performance in the past as well as changes that can be made in construction and use that to improve its performance in fire.

4.30pm Close of Conference



STREAM TWO

How Advanced Should Advanced Fire and Egress Modelling Be? *Greg North/Aaron Nicholson, Beca*

Fire and Egress modelling has long been a part of the fire engineers toolbox. With the recent Building Code change and the introduction of the Verification Method Framework for Fire Safety Design, modelling to determine available safe egress time (ASET) and required safe egress time (RSET) values will arguably be undertaken more often than before. Where is the tipping point between spreadsheets, zone modelling and CFD modelling? What are the consequences/effects of choosing the wrong model? This presentation will address how choosing the most appropriate model can add value to the project for the design team and the client.

A Comparison of the B-RISK Design Fire Generator with the NIST Workstation Experiments. *Apeksha Shah, Auckland Council*

A new quantitative risk assessment tool called B-RISK has recently been developed to deal with the risk and uncertainty inherent in performance-based fire safety engineering. The 'design fire generator' is one of the modules within the overall B-RISK model, which creates a family of unique probabilistic design fires for use in Monte-Carlo simulations. This presentation presents a comparison of the fires generated for an open plan single workstation and for multiple workstations in compartment with experimental results published by NIST. This presentation also discusses the heat release rate of commercial scale occupancies and item to item fire spread sequences of B-risk modelling output with experimental results.

AGMS

The Modern Day Hospital: Impossible without Fire Engineering? *Eliot Reeves, Norman Disney & Young*

Modern day hospitals present a unique challenge to the fire engineer due to the distinctive requirements of all stakeholders involved throughout the design, construction and commissioning stages of each project. Building codes typically recognise that healthcare buildings cater for a vulnerable occupant group who may not be able to evacuate in an emergency and in doing so results in hospitals being provided with a wide range of fire safety measures. This presentation uses real examples to show where fire engineering can add value to healthcare projects by directly influencing the fire protection design whilst ensuring the continued functionality of the facility.

When Adding Value is the Only Way – A Case Study at Whakatane Hospital.

Ben Hume MIFireE, CEng, MIPENZ and Hamish Denize MIPENZ, CPEng, MIE Australia, Beca Fire

What is adding value? In the case of an existing key building at Whakatane Hospital "Adding Value in the design process took on a substantial and key role. With significant fire safety upgrade work required on a critical building, the ability to maintain the operation of the building through any works became the primary driver. Risk Analysis had to be undertaken comparing the risk of a fire to the risk of life from the required works. This paper outlines the process that was undertaken, the creative end solution and key roles played by the local council and fire service to reach this.

Fire Engineering Designs often Ignore D1 Access Routes and more particularly egress for disabled people.

This is at our peril.

Debbie Scott and Peter Reddin, Onfire Consulting Ltd

This presentation will discuss these issues. It will explore the ease of including D1 requirements into fire engineering design, will discuss that fire egress should be accessible and will look at reasons why D1 has been separated from the C Clauses of the Building Code. The presentation will show that adding accessibility into our fire designs is worth it.



KEYNOTE SPEAKERS



Pro Vice-Chancellor Ted Zorn

*Massey University (Albany Campus),
College of Business*

Professor Theodore E. (Ted) Zorn is Pro Vice-Chancellor and Dean of the College of Business at Massey University. His teaching and research specialty is organizational communication, organizational change processes, and enhancing workplace well-being. He has published widely in communication and management journals and has consulted with a wide range of companies, government organisations and not-for-profit organisations. Prior to coming to Massey University in early 2012, Prof Zorn taught at Waikato University and, before that, at the University of North Carolina at Chapel Hill in the USA.

He is past editor of the academic journal *Management Communication Quarterly*, and the 2006 recipient of the International Communication Association's Frederic Jablin Award for Outstanding Contribution to Organizational Communication. He is co-author of the textbook *Organizational Communication in an Age of Globalization*, now in its second edition.



Grant N Lupton AFSM, B.GS, FIFireE, CPMgr, FAIM

Mr Grant Lupton, the IFE International President for 2013, has served as the Chief Fire Officer and Chief Executive of the South Australian Metropolitan Fire Service (MFS) since March 2002, making him one of the longest serving Chief Officers in the 150 year history of the MFS. Prior to his appointment in South Australia, Chief Officer Lupton was the Deputy Fire Commissioner for the Province of British Columbia, Canada. Mr Lupton has served as a Director of the International Fire Chiefs' Association of Asia and is an Honorary Life Member of the Fire Prevention Officers' Association of British Columbia. He is an elected Director of the International (UK) and Australian Boards of the Institution of Fire Engineers and is also a Member of the International Metropolitan Fire Chiefs' Association, the International Fire Marshals' Association and the Australasian Fire Authorities Council. Mr Lupton has been awarded the British Columbia Fire Chiefs' Association Certificate of Merit for his contribution to the British Columbia Fire Service and the Canadian Fire Services' Exemplary Service Medal. Since moving to Australia, Chief Officer Lupton has helped lead a collaborative approach to sector-wide emergency service reforms and contemporary industrial relations in South Australia. Mr Lupton was a Board member of the 2007 World Police and Fire Games and is currently appointed as a Trustee to the Australian Fire and Emergency Services Commission, a Board Member of the South Australian Government Radio Network Board and a Board Member of the South Australian Rugby Union. He has been a member of the fire service for over 34 years and was awarded the Australian Fire Service Medal (AFSM) in January 2007 and the MFS Exemplary Service Medal in 2012.



Glenn Talbot – Verified, Australia

Glenn has spent all of his working life in the fire industry. Originally employed as a Cadet Fire Protection Engineer, he has been involved in many facets of fire protection and has managed some of the industry's largest providers. In 2002 Glenn founded a company called Verified that aimed to provide building owners and managers with a unique way to manage building compliance. Verified is a leader in field-based data gathering and management. Glenn has been an active state committee member of FPA Australia for over 20 years. He was the Vice Chairman of the Victorian division from 2003 – 2006, elected to the FPA Australia Board as a Director in 2006, and elected National President in 2010 serving for two years. He is a current member of Australian Standards committee FP-001, "Maintenance of Fire Protection Systems and Equipment," representing the Facility Management Association of Australia.



Paul Richards – NZ Fire Service

Paul has worked as a design consultant in Christchurch since 2007 and during that time he has been involved in a range of projects throughout NZ as well as projects in Australia and Fiji. Paul has a keen interest in the design of smoke control systems and smoke management within buildings. He joined the NZFS in 2011 and is currently the Team Leader of the Christchurch based Fire Service engineers.



Etienne Hermouet – NZ Fire Service

Etienne is a senior Fire Engineer with the New Zealand Fire Service Engineering Unit. Prior to that, he worked in the United Kingdom as a Senior Fire Engineer for a large multi-disciplinary consultancy where he was leading the fire engineering design on a variety of developments including high rise buildings and large rail infrastructure projects. He holds a MSc in Fire Safety Engineering from the University of Ulster.

EXHIBITION OPENING

Monday 21 October 2013

5.30pm – 6.30pm

OPEN INVITATION - FREE ENTRY



To assist with catering please
email irma@fireprotection.org.nz
to advise if you will be attending.

SPEAKERS IN ALPHABETICAL ORDER



Louise Craig BA (Hons) TQFE Msc

CEO Institution of Fire Engineers

Louise was appointed CEO of the IFE in 2008. Instrumental in gaining Ofqual approval and developing sector partnerships, Louise has led the organisation through a seven-fold increase in the update of IFE fire-related exams to over 7,3000 annually. Her tenure has seen the IFE's audit rating as a licensed Professional Engineering Institution (PEI) transform from fair to excellent and, at the request of the Engineering Council, Louise presents to other PEIs on successfully driving forward organisational improvement. Louise's own CPD includes a Master of Science degree (distinction), a professional teaching qualification, and she holds a number of Board and Committee appointments, including chairing the Fire Sector Federation workforce development group.



Peter Degerholm MM (Dispute Resolution)

Reg QS FNZIQS FAMINZ (Arb, Med) MRICS

Calderglen Associates Limited

Peter is a Registered QS, Fellow of the NZIQS and the Arbitrators & Mediators Institute of NZ, and Professional Member of the Royal Institute of Chartered Surveyors. He has a Masters Degree in Dispute Resolution, and practices full time in construction contract disputes. He acts as adjudicator, mediator and arbitrator in disputes, and also provides advisory and negotiation services to a wide variety of clients. Peter was instrumental in the passing of the Construction Contracts Act 2002, and wrote Managing Contractors Cashflow, Making the Construction Contracts Act work for you. He is now actively involved in promoting debate on industry issues, including the Construction Contracts Amendment Bill. He sits on the NZS 3910 review committee, and has recently completed a series of seminars on contract conditions for engineers and architects.



Hamish Denize MIPENZ, CPEng, MIEAUST

Technical Director, Beca Fire

As a Technical Director at Beca in the Fire Engineering and Protection Field, Hamish oversees a number of the major fire engineering projects undertaken by Beca throughout New Zealand and Australia. Having studied fire engineering at the University of Canterbury, Hamish worked in Australia on a range of projects before returning to Beca. Hamish specialises in fire engineering regulations, engineered solutions and fire protection system implementation.



April Flux MLib. Knowledge and Information Manager, NZ Fire Service

I'm a professional librarian, with nearly 20 years experience. Over half of those years have been at NZFS. My previous roles were at Whangarei District Libraries, National Library and the Auckland College of Education. I have been finding, wrangling, describing and sharing fire information for 12 years, and I am still learning. I get my inspiration from Emma and Maki (NZFS Library team) who go out of their way to find new ways of helping people. I am the Chair of Australasian Libraries in the Emergency Sector (ALIES) and love to follow emergency and library blogs to get the latest information and innovations. I don't work with information. I work with people, who just happen to need information to do their jobs.



Dave Hipkins, Wormald

Dave is National Technical and Product Manager with Wormald. Dave is responsible for the day to day operations of the technical and engineering group, which ensures compliance of Wormald's fire protection products, systems and servicing operations. Dave joined Wormald in 1987 and has over 25 years' engineering experience in the fire protection industry. Dave holds a Bachelor of Engineering (Mechanical) and a Masters of Engineering (Fire). He is also a Chartered Professional Engineer and a member of the Institute of Professional Engineers New Zealand (IPENZ).



Peter G. Hughes CMIFireE

Fire Risk Consultant

Peter is a Past President of the IFE New Zealand Branch, a Member of the New Zealand Standards Fire Industry Advisory Group, and the NZ Standards Fire Suppression interpretations committee. He is a committee member of the New Zealand Standards Fire Suppression reviews of NZS4541, 4515, and 4517, SNZ PAS NZS 4509 and NZS 4510. Over forty years in the field of Risk Management and Loss control both in New Zealand and the UK. 25 years in the British Fire Service as a senior fire officer in Greater Manchester Fire and Rescue Service. After retiring from the Fire Service worked in North Wales as an Assistant County Emergency Planning Officer and then as a Building Control Inspector in a local council Building Control Department as a Fire Safety and Means of Escape officer. In New Zealand worked as a Regional Council Emergency Planning Officer and then a Loss Control Engineer in the Insurance industry for the last 21 years. Responsible for the delivery of technical risk assessments, audits of Loss control and Fire safety standards, Review and disaster/Business Continuity plans for major clients in New Zealand. Audit and advice for fire suppression systems and product safety, and environmental risks. Retired from full time employment in 2012 and now operates a fire risk consultancy Fire Risk Assessment Limited primarily responsible for the Fire Safety auditing and insurance Loss Control inspections. Currently employed by Aon New Zealand assisting the SSC to audit and approve Listed Sprinkler Contractors.



Ben Hume MIFireE, CEng, MIPENZ

Associate, Beca Fire

Ben is an Associate at Beca in the Fire Engineering and Building Services field. Having studied Mechanical and Fire Engineering at the University of Canterbury, he joined Arup in London where he developed and lead the advanced fire modelling team. On returning to New Zealand, he joined Beca and is now the lead engineer on a number of fire specific and multi discipline projects. Ben specialises in advanced fire modelling techniques such as FDS and the development of engineering solutions.



Ron Lawson

CEO of Insulated Panel Council Australasia Ltd

Ron Lawson has been employed in a number of roles in the EPS and panel industry in the last 40 plus years commencing work as a Cadet Structural Engineer in a consulting Engineering and Construction firm which specialised in the design and construction of Food Processing and Storage facilities. Ron moved into Project Management and Senior Management roles within that Group responsible for projects locally and internationally in Asia, Europe and the Middle East. These projects were based on the use of EPS Panel Systems for their success. A major project utilising EPS panel product was for the various buildings at World Expo 88 in Brisbane and Ron was responsible for the sale and project management over a period of 3-4 years. This project utilised over 100m² of Insulated Panel. Ron has successfully managed three Manufacturing Businesses including one which manufactured and marketed EPS production equipment sold to the US, Asia, Middle East and Russia, another manufactured Insulated Sandwich Panels. Ron is familiar with the EPS industries locally and internationally and is the fulltime CEO of the Insulated Panel Council Australasia Ltd. In the past Ron has been involved with a number of Industry Groups in various capacities, including the Metal Roofing Industry Association and Australia Russia Business Council. In recent years Ron has been primarily involved in Business Development, Marketing and Project Sales prior to taking up the role of CEO of The Insulated Panel Council Australasia Ltd.

**Andrew Minturn***Senior Advisor GeoBuild, Ministry of Business Innovation and Employment*

Andrew has been involved in the building industry for over 17 years and has been advising the Government for the past 10 years. Andrew has considerable experience as an international consultant and speaker on the process of regulatory building control reform, having provided advice and guidance to the governments of New Zealand, Egypt, Armenia, Bahrain, Canada, Albania, Russia, Ukraine and Serbia as well as the World Bank and International Finance Corporation. His current New Zealand projects are GeoBuild and National Online Consulting.

**Aaron Nicholson, Senior Fire Engineer, Beca**

Aaron is a Senior Fire Engineer with Beca. With a career entirely within the fire protection and fire engineering industries, Aaron has fire engineering design and fire protection design experience over a wide range of sectors in the United Kingdom, New Zealand and Australia. Aaron has been the lead fire engineer for SKYCITY Auckland projects to expand and upgrade their facilities since 2007. He holds a Bachelor of Science with Honours in Fire Science from the University of Leeds.

**Greg North, Senior Fire Engineer, Beca**

Greg is a Senior Fire Engineer with Beca. Having worked as a fire engineer in Sweden, England and New Zealand, he has gained experience in a diverse collection of projects which has required the use of many different assessment tools to support the performance-based design approaches used. Examples include his recently completed designs; the AUT University WG Precinct Project and the University of Auckland Boyle Building. He holds a Master's Degree in Fire Engineering from the University of Canterbury.

**Peter Reddin, OnFire Consulting**

Peter worked for the fire service prior to coming to New Zealand in 2005 from South Africa, achieving the level of 'Station Officer' (Fire Prevention and Operational) before starting his own consultancy practice in 2001. As a consultant Peter provided fire safety advice to architects, building owners, developers and engineers. He has also owned and operated his own 4x4 accessory business and been fire manager for a 60,000 Ha pine plantation with 60 contract firefighters. Peter has also managed motorcycle and marine workshops before returning to fire engineering consulting in 2008.

**Eliot Reeves, Norman Disney Young**

Eliot is a Senior Fire Engineer with international consultancy experience in the UK, Australia and Asia. Eliot's work involves the development of performance-based Fire Engineering strategies for a variety of building types. His project work includes large commercial developments, residential complexes, retail centres, healthcare facilities, aircraft hangars, rail transportation, mining and large processing facilities. Through his sound understanding of the principles of Fire Engineering design, Eliot is able to provide detailed strategic advice that allows the project to meet the performance requirements of the relevant building codes. Eliot enjoys developing the engineered solution with the professional team and ensures there is close dialogue with the client, key stakeholders and the approving authorities.

**Sam Ricardo, FM Global**

Sam Ricardo, Group Manager Field Engineering, at FM Global is based in Melbourne and is responsible for delivery of our engineering services in New Zealand. With two resident engineers based in Auckland Sam is regularly in New Zealand talking to clients. In addition he has seen firsthand the consequences of fire at facilities with poor fire protection through loss investigations.

**Mark Reilly, AFSM, CMIFireE**

Mark Reilly is a Director of the IFE's International Board, a Director of the Australian IFE's National Board and is the Immediate Past President of the IFE Australia Branch. He is currently the Duty Commander City and has served in Fire and Rescue NSW for over 29 years. Mark has extensive and wide ranging experience in fire fighting operations in the urban built environment as well as a contemporary knowledge of modern building practices, in particular those buildings with engineered solutions. Mark has completed postgraduate degrees in public sector management, applied management and Emergency Management. Mark is a Member of the Institution of Fire Engineers and was awarded the honour of 'Companion' in 2012. Mark was awarded the Australian Fire Service Medal in the 2009 Queens Birthday Honours List.

**Nick Saunders, MBIE**

Nick is a Senior Advisor with Ministry of Business, Innovation and Employment, having been with the building regulatory body in its former guises since 2004. With 10 years Fire Service experience in the UK and 15 years as a professional engineer Nick's background provides both practical and technical strands to fire engineering.

**Debbie Scott, OnFire Consulting**

Debbie has worked in the building industry since 1999 and enjoys working on a wide range of projects. Her primary role has been as a consulting fire engineer however she has also spent two years in a technical advisory and research and development role at Winstone Wallboards Ltd. Debbie has worked extensively with the Department of Building and Housing as an independent "expert" in the determination process and as a member of the working group responsible for developing the new Protection from Fire framework which was released in April 2012.

**Apeksha Shah, Auckland Council**

Apeksha is a Fire Engineer working for Auckland Council and spends most of her time processing Fire Engineering Briefs. She holds a Bachelors Degree in Civil Engineering from overseas and a Masters Degree in Fire Engineering from Canterbury University. In addition to her fire expertise, she has extensive experience processing building consents in Auckland Council. Prior to Auckland Council she worked as a structural/civil engineer with a consultancy in Auckland. She has 10 years of experience in structural designing from overseas.

**Amanda Warren, Constructing Excellence**

Amanda is an experienced Management Consultant who has delivered successful outcomes on a wide range of change programmes specifically within the construction sector both in UK and more recently New Zealand. Amanda's main area of focus in recent years has been in developing integrated supply teams for clients with repeat programmes of work such as schools, housing, high street branches etc. She has developed and implemented a seven step methodology for achieving tangible and dramatic improvements in delivery performance.

**Tim Weight, Building Control Manager, Central Area, Auckland City Council**

My name is Tim Weight and I am the Central Building Control Manager for Auckland Council. My role covers all areas of the building process for new building work and the existing building stock. I have worked for four different councils over the past eighteen years undertaking all roles in building control from processing to certification which has given me a good understanding of the many challenges for the customer and the council in delivering a quality product on time.

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The Canterbury Situation Today



Duane Harding-Browne
GIFireE

Institution of Fire Engineers
National Branch Council

It has been 3 years since the Canterbury region was awakened by the first of a series of major earthquakes. When considering the theme of this year's conference, we can look at how this theme is fitting in with the rebuild? Is this something that shines the light on Added Value – it is Worth it. I will look at the Canterbury situation in this from this point of view.

When looking at any major event it is important to be aware that there are stages that the people who live through such a time go through, some of these stages are:

- Initial impact of the event
- Reaction to that impact (flight or fight)
- Initial recovery
- Psychological impact (ongoing)
- Impact of aftershocks
- Insurance and EQC issues (specific to Canterbury events)

All of these impacts are different for different people living in different areas in different circumstances so it is very hard to talk in a general way about them.

Here in Canterbury there are constant newspaper and radio articles/talks about the rebuild and the impact on particular areas, companies, sites and the community. This continuously puts what is happening here in the limelight and the forefront of people's minds, both here in New Zealand and in Australasia in general. This is where we need to be mindful of added value and what it means.

There are some rebuild businesses who try (some succeed while others do not) to add value by building better stronger and more versatile buildings that can be considered to be future proofed (In Canterbury's case, from further aftershocks). From what is seen in the rebuild so far this does happen sometimes and sometimes it does not, why is that?

I propose that a couple of the biggest guiding factors for why it doesn't always happen:

- Insurance and EQC constraints and Policy
- Lack of foresight on behalf of building owners
- Cost factors (Maximum profit for Minimum investment)
- Code of compliance issues (including costs and delays)
- Political involvement – through the Canterbury Earthquake Recovery Authority (CERA), (Red Zoning, Compulsory acquisition of Property)

I am sure there are more that you could think of to add to this list. In essence these factors are like a locked brake on an 18 wheeler, they slow it down, cause damage and stress, and usually wind up costing more money down the track in expensive repairs.

I believe that (sadly) we live in a world where if at all possible corners will be cut and the minimum requirements will be met to get the job done and that final sign off given, no more. Meaning of course, that it is very difficult to actually add value. The only way to successfully be able to do this, is to either be the decision maker with plenty of funding in your direct control or put a very good case forward showing that the added value is in fact something that is tangible and cost effective and thereby a necessity.

When it comes down to it, companies and businesses will only spend what they need to get the job and or goal achieved. So with that in mind to add value, that added value needs to be built in to any design or idea being presented. It also needs to be well thought out and justifiable, as remember, there will always be someone looking to shave off costs and so if it isn't necessary or totally justifiable then it will not be added.

When considering the topic of this year's conference it is actually a question that answers itself, meaning that we have already decided that added value is worth it. Now all we have to do is prove it from an economic point of view for that added value.

Here is an example of adding value (in Christchurch City) ... or not...?



Westende Building –
destroyed Feb 2011



Westende building
new current build

Great to see the new building go up, and it was one of the first, definitely added value to the owner since its destruction. But...

Political (local Government and CERA involvement) means in the new plan this will become:



Part of the new green zone in the city plan

Meaning this new building is in line to be deliberately demolished.

**Does this add value? And where is that value?
And who is getting that value?**

This is the type of thing that we need to think about and in this real life example there are obviously a number of factors – of which I will not get into here. Suffice to say that it makes a good point about added value!

Here I have only talked about buildings as an easy example as it is very dear to us in Canterbury. However added value can be considered in everything we do, for example:

I need a bottle of milk today, but have to drive 4km to get it. I also need one for each of the next 2 days. So to add value I will buy 3 bottles in my one trip, thereby saving mileage, fuel and wear and tear on the car as well as time. I have just added value in 3 distinct ways (you can work that out yourself). Drawback is I spent money on 3 bottles in one day – so a potential budgeting issue? But if I didn't think about getting all 3 in one day then am I not living in a false economy?

I deliberately made that simple but it is an example that can be applied to anything and in that instance it makes perfect sense

does it not? So why can't we apply this to buildings (especially in Canterbury where we have been presented with such a fantastic opportunity to add that value easily!!), but will the developers listen?

So when looking at it we can add the value, we just need to make sure and prove that the value we add exceeds the cost of adding it. As Fire professionals it applies even more as we deal with that difficult to value (financially), human safety aspect, which in the main is why we need to work extra hard to push for and gain that extra value – perhaps we just have to be smarter as to how we approach it.

In closing I trust that you will make it to the conference this year and that you will gain some strategies to be able to achieve some added value within your sphere of influence. Remember we have already asked and answered the question about added value in the conference theme, now we have to sort out the how – and that is the difficult bit...



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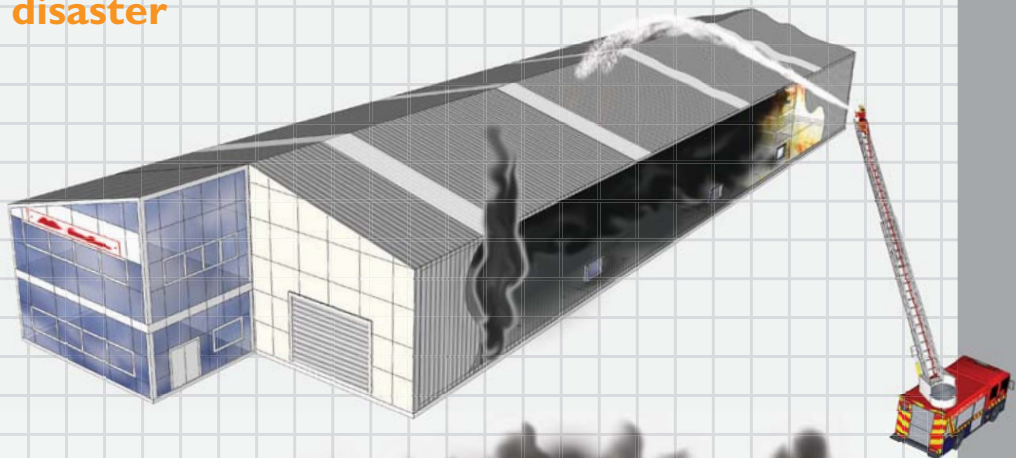
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Pouring water on a disaster

No effective ventilation

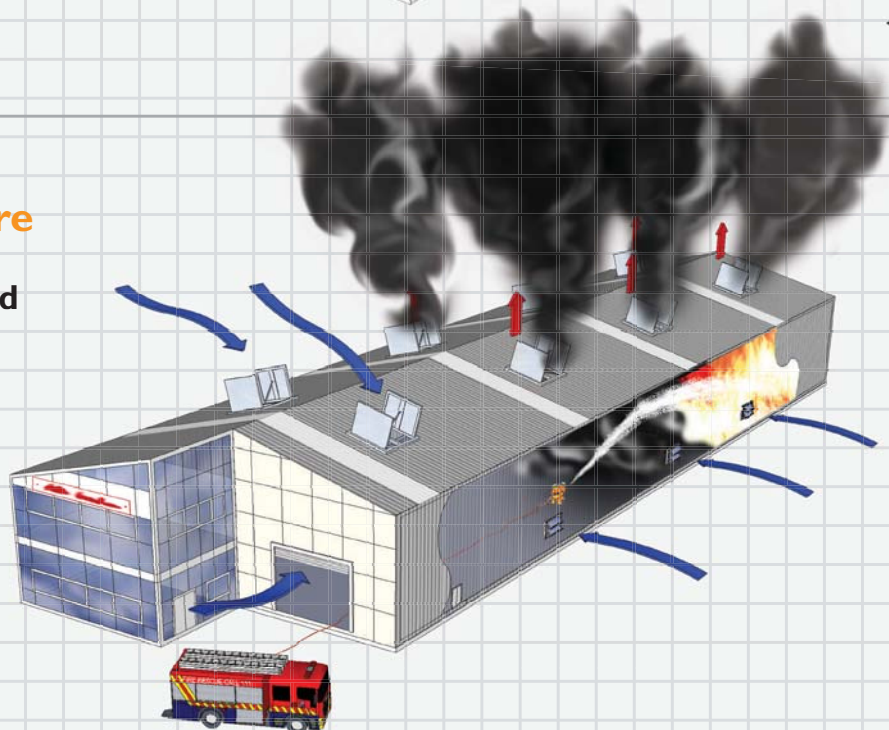
- Building smoke logs in 3 minutes
- Fire fighters can't fight fire
- Stock lost, customers lost, jobs lost, total building lost
- No ventilation, too hot in summer, much lower productivity



OR putting out a fire

Colt effective smoke and fire ventilation

- Automatic, so covers inlet and exhaust requirements
- Smoke layer kept high so fire fighters can fight fire
- Provide natural ventilation, cooler temperatures mean higher productivity
- Internationally tested products and systems



“KII – OPERATIONAL SUPPORT”

With the majority of the Auckland metropolitan area served by career firefighters, volunteers are mostly found where the urban area begins to merge with its rural borders. But around New Zealand's largest city a specialist volunteer contingent is at work. The Auckland Operational Support Unit has a contingent of 60 members, making it the largest volunteer body within the NZ Fire Service, and with 550 or more calls attended per annum, it is also the busiest.



Ross Bay BTh, PGDip
Past Theol (London), GFireE

A PROUD HISTORY

The Unit is now 80 years old, having been formed as a Fire Police section within the Auckland Fire Brigade in 1933 in response to the demands placed on the Auckland brigade by a series of large fires. A major city blaze in February 1931 attracted an estimated 10,000 spectators. Some of these took advantage of the situation and looted fire damaged pawnbrokers, shoe stores and jewellery shops. Unknown amounts of stock were stolen. The crowd was endangered by heat-weakened power lines, masonry twisting and falling on to footpaths. The Fire Chief, Superintendent Bill Wilson, had his hands full with the entire city block ablaze. Police were outnumbered by the crowd. Naval men with bayonets fixed, summoned from their base across the harbour at Devonport, arrived to restore order and prevent looting.

The group was the brainchild of Superintendent Bill Wilson, the Auckland fire chief of the time. He was aware of other such groups in other towns and cities around the country. The original 12 members were sworn in as special constables on 22 June 1933. They were to respond to major fires to maintain public order and safety.

The Unit has constantly adapted to the changes that have taken place within the Fire Service as a whole over the past eight decades. Its membership has grown, uniform and equipment have developed along with the range of duties performed. In 2011 as the result of changes to the Police and Fire Services legislation, the establishment of such a group of special constables was no longer possible. The Auckland Fire Police Unit officially became the Auckland Operational Support Unit.

A MODERN FORCE

While never losing the focus of its core business as being scene safety, the Unit has developed a range of specialist functions and services to enhance its ability to serve Auckland's firefighting force.

Prominent among these is the Unit's Canteen vehicle which responds to major or long-duration incidents in order to provide meals and refreshments. This specialist vehicle is a fully equipped kitchen built onto the chassis of a 2002 Iveco Eurocargo truck. A driver and crew member are rostered for fortnightly periods and the truck is available to respond 24/7. It is equipped with its own filtered water supply and gas water heating to



be able to immediately serve hot and cold drinks on arrival at an incident. Rehydration of firefighters is seen as an important health and safety issue.

It is able to provide food for over 100 people from its onboard stock, which includes a range of frozen and freeze-dried ready meals. Gas hobs, a commercial-grade microwave, and a barbeque provide for a flexible menu dependant on the type of incident and the numbers to be served.

Alongside this vehicle a specialist ablutions trailer has been developed. This was commissioned in 2003 and has two built-in showers and toilets. The focus is on providing such facilities for incidents in remote areas or in long-duration situations. The showers form part of the decontamination process where staff require a hot shower following the cold-water decontamination shower.

Both these vehicles have spent days at a time at incidents sometimes in remote areas. They were both responded to Christchurch following the major earthquake in 2011, and were stationed there for a fortnight, staffed by a rotating crew of Auckland Operational Support members.

NOT JUST COOKS AND BOTTLE WASHERS

The unique contribution made through these specialist appliances is just one aspect of the range of duties which the Unit fulfils. Not many days pass without members of the Unit turning out to support the Fire Service at an incident. These include motor vehicle crashes, property fires, hazardous substance calls, and salvage incidents.

The radio call "K11 Operational Support" will often be to provide scene safety by way of crowd and traffic management. These are core functions for the Unit and will be the first priorities on arrival at any incident. As a city of 1.5 million people, traffic is a major hazard at incidents. Operational Support members are well trained in this area. Many have the NZ Transport Authority TC (Traffic Controller) and STMS (Site Traffic Management Supervisor) qualifications.

The Unit runs three urgent response vehicles which carry road cones, signs, barriers and lights to manage this aspect of scene safety. One of these vehicles is a Ford Transit van and the other two are Mitsubishi Canter light trucks. The Unit covers a large geographical area from Albany in the north to Drury in the south, and from Whenuapai in the west to Whitford in the east. There is no station from which members respond. Instead each person carries their PPE in their car and makes their own way to a call. This normal traffic response can create delays in getting staff on scene. The response vehicles which are crewed by rostered drivers throughout the week ensure the prompt arrival of both personnel and equipment at any incident.

MAINTAINING A PROFESSIONAL FORCE

Though proudly a volunteer body, the Auckland Unit sets a high bar on professional standards in the fulfilment of its duties. Over the past decade in particular, a heavy emphasis has been placed on training to ensure that the best value possible is added by members of the Unit at whatever incident they attend. In addition to the core functions detailed above, the Unit also assists with lighting, salvage, Incident Control Point functions, first aid, and water supply among others.

Training is undertaken twice each month within the Unit. Members undertake other courses through the year at the Region Training Centre.

A significant advance has been the creation of an Operational Support two-day course run by the National Training Centre in Rotorua. This is a course within the Fire Service's TAPS (Training and Progression System) programme. The course is open to those in the recruit phase of their membership to enable them to enhance their basic skills. The weekend itself is preceded by significant local training through a series of 12 pre-course learning modules. This course both ensures high-functioning staff and helps to create a set of national training standards for Operational Support personnel around the country.

A COLOURFUL TEAM

Like any volunteer contingent, the Auckland Unit is made up of a variety of personalities from different backgrounds and working lives. Over the years the Unit has counted senior executives, IT specialists, journalists, electricians, paramedics, and even a train driver within its ranks. As with all volunteer bodies, the bond is the common goal of service for which the organisation stands, and from that flow a strong camaraderie and sense of purpose.

The Auckland Operational Support Unit looks confidently to the future and the ways in which it can continue to add value in the constantly changing environment of a modern city and the response of emergency services to the city's needs.

Ross Bay is a volunteer with the Auckland Operational Support Unit. He has 23 years of service and holds the rank of Senior Station Officer (Operational Support). In his working life, he is Anglican Bishop of Auckland, a position he has held since 2010. He is responsible for some 90 parishes in the area from Hauraki Plains and Coromandel to the Far North. Ross completed the IFE graduate exams in 2002.



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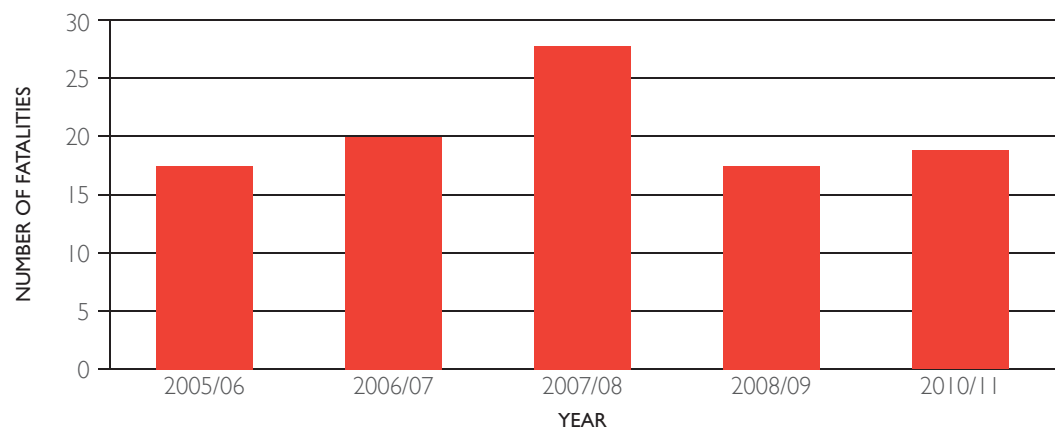


FIRE DOESN'T KILL PEOPLE

Jeremy Gibbons
BCom, GradDipEmergMgt,
GIFireE, FNZFBI

The number of fatalities in New Zealand house fires each year has varied between 18 in the 2005/06 year to as high as 28 in the 2007/08 year as seen in the graph below. Whilst these deaths are recorded as fire fatalities, the actual cause of the death is not as simple to conclude. Fatal elements within a house fire include heat, oxygen deprivation, poisonous, toxic and carcinogenic products of combustion. This paper will examine some of these elements and put them into perspective for fire fighters entering a building and members of the public entering after the fire has been extinguished.

FIRE FATALITIES AT RESIDENTIAL PROPERTIES



The respiration process draws atmospheric air in through our mouth and nose, the air is warmed slightly and passes down our Trachea and branches left or right into our two Bronchi. These then split a further 22 times into more than 100,000 Bronchioles and finally into the Alveoli. Each of our 300 million Alveoli is a tiny sack one cell thick and surrounded by capillaries. Oxygen diffuses into the blood through the Alveolar and capillary wall and Carbon Dioxide diffuses out of the blood.

A healthy adult has an internal surface area of alveolar tissue where gas exchange can take place of approximately 70 square metres and a total lung volume of 4-6 litres. The tidal volume is approximately 0.5 litres per breath for a 70kg healthy adult at rest.

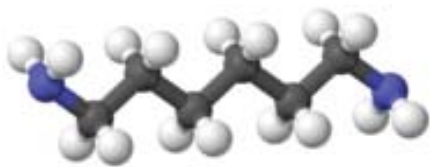
The human body and the respiratory system in particular, is not designed to function in a house fire situation where temperatures can exceed 600 degrees Celsius at ceiling height and 250 degrees Celsius at thigh level (0.76m) within 2 minutes of ignition (Putorti and McElroy, 2000). Negative environmental factors in such a situation include reduced oxygen levels, high carbon monoxide levels, poisonous gases, toxic and irritant particulates and most obviously, high heat levels.

A modern house with modern furnishings contains a number of compounds that break down in fire situations and release toxic smoke. Studies of toxic substances in fires have identified 9 known human carcinogens, 5 probable human carcinogens and 21 possible human carcinogens. Tables 1 and 2 below list those known and probable carcinogens identified in smoke at fires.

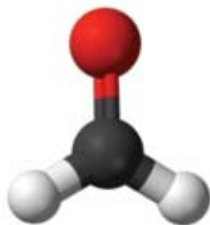
TABLE 1 - KNOWN HUMAN CARCINOGENS

TABLE 2 - PROBABLE HUMAN CACINOGENS

Most polymers found in buildings will burn or thermally degrade to simpler monomers. Thermal degradation products include methane, ethane, ethylene, benzene, toluene, and ethylbenzene in addition to the following monomers: Ethylene, Vinyl Chloride, Acrylonitrile, Tetrafluoroethylene, Styrene, Methyl Methacrylate, Ethylene Glycol, Terephthalic acid, Phenol, Formaldehyde, Hexamethylenediamine, Adipic acid, Propene, Vinyl Acetate, Vinylidene Chloride, Chloroprene, 1,3-Butadiene, Ethyl Acrylate, Ethylene Oxide,



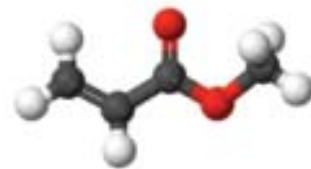
HEXAMETHYLENEDIAMINE



FORMALDEHYDE



ETHYLBENZENE



METHYLACRYLATE

Methyl acrylate, Urea, and Isoprene.

Burning and thermal degradation of wool, silk, cotton, nylon, plastic, polymers, foam, melamine, polyacrylonitriles, and synthetic rubber produces highly toxic Hydrogen Cyanide. A concentration of 300ppm will kill a human in ten minutes.

Other toxic byproducts from combustion of these products include Hydrogen Chloride, Ammonia, Hydrogen Fluoride, Hydrogen Bromide, Isocyanates and Acrolein.

In a study of 14 fires attended by a New York Firehouse in 1984, Carbon Monoxide was present in all these fires (20% of which has concentrations above the short term exposure limit STEL of 400ppm); Benzene was detected in 12 of the 14 fires with concentrations up to 250ppm (STEL of 25ppm); Hydrogen Cyanide was detected in 8 incidents (maximum detected concentration of 75ppm); Sulphur Dioxide occurred in 8 of 14 cases; Formaldehyde was present in 4 fires and Hydrogen Chloride was identified in 2 of the 14 incidents.

The data in this study was collected 28 years ago and building contents, materials and furnishings have changed during this time. Fire retardants, stain coatings and other manufactured products have added new chemicals that decompose under the thermal stress of a house fire and release toxic or carcinogenic gases.

To put the exposure figures for several of the chemicals in perspective, 4000ppm of Carbon Monoxide is fatal in less than 1 hour. That concentration is equivalent to 0.4% or 2ml of CO per breath.

Hydrogen Cyanide is rapidly fatal at 3000ppm which is 0.3% or 1.5ml of HCN per breath.

Hydrogen Chloride will damage the upper respiratory tract leading to asphyxiation or death. HCl is rapidly fatal at 1000ppm (0.1%) equivalent to 0.5ml of gas per breath.

Nitrogen Dioxide reacts with water in the mucous membranes forming Nitric acid and is rapidly fatal at 240ppm (0.024%) equivalent to 0.12ml of gas per breath.

Firefighters and building occupants need to be well aware of the danger posed to their health at all stages of a house fire including the hours or even days after a fire where decomposition of compounds continues to produce hazardous by products. Insurance assessors, media, neighbours as well as friends and family are often observed moving through the remains of a burned house with no respiratory protection. Every breath taken by someone without proper protection introduces toxic and carcinogenic substances into the lung tissue where it can pass easily into the blood stream.

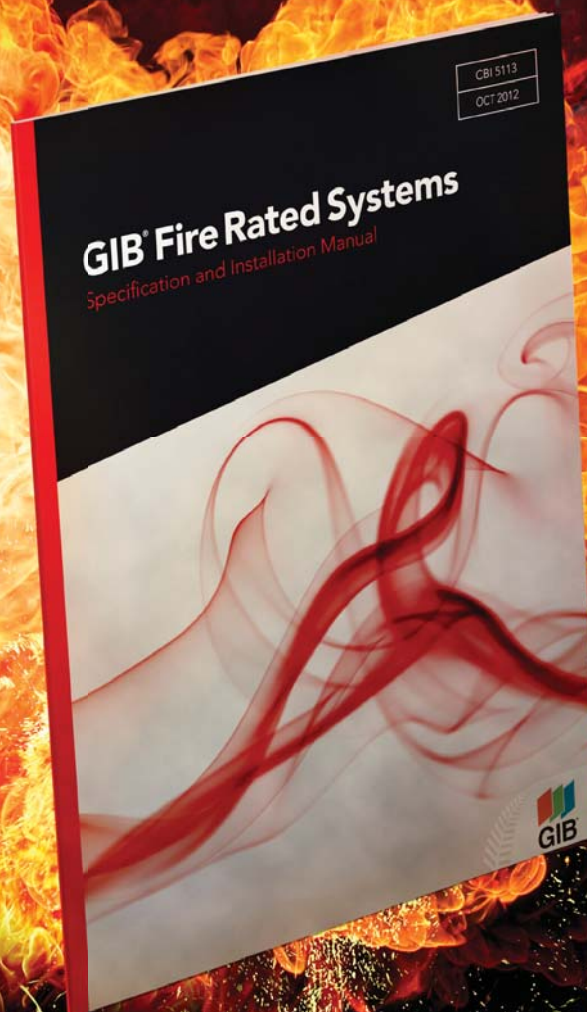
Fire doesn't kill people. Smoke kills people and in some cases, as indicated by the properties of the chemicals above, those deaths may not occur until years in the future.



REFERENCES

- Putorti, A. D., Jr.; McElroy, J. A., Full-Scale House Fire Experiment for InterFIRE VR, May 6, 1998. Report of Test. *Building and Fire Research Laboratory, 2000*
- Unger KM, Snow RM, Mestas JM, Miller WC. Smoke inhalation in firemen. *Thorax* 1980;35:838-42.





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